

Abstract

Disclosed is an animation method of deformable objects using an oriented material point and generalized spring model. The animation method comprises the following steps of: modeling a structure of a deformable object into oriented material points and generalized springs; initializing forces and torques acting on the material points, calculating the forces acting on the material points owing to collision of the material points and gravity, calculating the spring forces and torques acting on the material points, obtaining new positions and postures of the material points; updating positions, velocities, postures and angular velocities of the material points based upon physics, and displaying and storing updated results. The oriented material point and generalized spring model of the invention contains the principle of the conventional mass-spring model, but can animate deformable objects or express their structures in more intuitive manner over the conventional mass-spring model. Also, the material point and generalized spring model of the invention can express elongate deformable objects such as hair and wrinkled cloth, which cannot be expressed in the prior art, so as to animate features of various objects.